

WHAT IS CLAIMED IS:

- 1           1.     An immunoglobulin molecule or fragment thereof comprising a region  
2     where amino acid residues corresponding to at least a portion of a complementarity  
3     determining regions (CDR) is replaced with a peptide selected from the group  
4     consisting of hBNP, hBNP mimetics, GLP-1, GLP-1 mimetics, GLP-2, GLP-2 mimetics,  
5     exendin, exendin mimetics, glucagons, glucagon mimetics and PACAP-38.
- 1           2.     An immunoglobulin molecule or fragment thereof according to claim 1  
2     further comprising at least one flanking sequence including at least one amino acid  
3     covalently linked to at least one end of the peptide.
- 4           3.     An immunoglobulin molecule or fragment thereof according to claim 1  
5     wherein the immunoglobulin molecule fragment is selected from the group consisting  
6     of Fab fragment, F(ab')<sub>2</sub> fragment and ScFv fragment.
- 1           4.     An immunoglobulin molecule or fragment thereof according to claim 1  
2     wherein the immunoglobulin molecule is a full IgG molecule.
- 1           5.     An immunoglobulin molecule or fragment thereof according to claim 1  
2     wherein at least a portion of two CDRs are replaced with a peptide.  
3
- 4           6.     An immunoglobulin molecule or fragment thereof according to claim 5  
5     wherein the two CDRs are both located on a heavy chain.
- 1           7.     An immunoglobulin molecule or fragment thereof according to claim 5  
2     wherein the two CDRs are a CDR3 of a heavy chain and a CDR2 of a heavy chain.
- 1           8.     An immunoglobulin molecule or fragment thereof according to claim 1  
2     wherein the immunoglobulin molecule or fragment thereof is human.

1           9.     An immunoglobulin molecule or fragment thereof according to claim 1  
2 wherein the immunoglobulin molecule or fragment thereof is anti-tetanus toxoid.

1           10.    Nucleic acid encoding an immunoglobulin molecule or fragment thereof  
2 according to claim 1.

1           11.    An expression vector comprising nucleic acid according to claim 10.

1           12.    A host cell transformed with an expression vector according to claim 11.

1           13.    A method of producing an immunoglobulin molecule or fragment thereof  
2 comprising culturing a host cell according to claim 12 under conditions suitable for  
3 expression of the immunoglobulin or fragment thereof.

1           14.    A composition comprising an immunoglobulin or fragment thereof  
2 according to claim 1 and a pharmaceutically acceptable carrier.

3

4           15.    A method of treating congestive heart failure comprising administering to a  
5 subject an immunoglobulin molecule or fragment thereof comprising a region where  
6 amino acid residues corresponding to at least a portion of a complementarity  
7 determining regions (CDR) is replaced with a peptide selected from the group  
8 consisting of hBNP and hBNP mimetics.

9

10          16.    A method of treating diabetes comprising administering to a subject an  
11 immunoglobulin molecule or fragment thereof comprising a region where amino acid  
12 residues corresponding to at least a portion of a complementarity determining regions  
13 (CDR) is replaced with a peptide selected from the group consisting of, GLP-1, GLP-1  
14 mimetics, GLP-2, GLP-2 mimetics, exendin, exendin mimetics, glucagons, glucagons  
15 mimetics and PACAP-38.

16

17           17.    A method of treating obesity comprising administering to a subject an  
18 immunoglobulin molecule or fragment thereof comprising a region where amino acid  
19 residues corresponding to at least a portion of a complementarity determining regions  
20 (CDR) is replaced with a peptide selected from the group consisting of, GLP-1, GLP-1  
21 mimetics, GLP-2, GLP-2 mimetics, exendin, exendin mimetics, glucagons, glucagons  
22 mimetics and PACAP-38.

23  
24           18.    A method of preserving or improving beta-cell function comprising  
25 administering to a subject an immunoglobulin molecule or fragment thereof comprising  
26 a region where amino acid residues corresponding to at least a portion of a  
27 complementarity determining regions (CDR) is replaced with GLP-1.

1  
2           19.    A method of inducing endothelial-dependent relaxation of precontracted  
3 pulmonary artery rings comprising administering to a subject an immunoglobulin  
4 molecule or fragment thereof comprising a region where amino acid residues  
5 corresponding to at least a portion of a complementarity determining regions (CDR) is  
6 replaced with GLP-1.

7  
8           20.    A method comprising administering to a subject an immunoglobulin  
9 molecule or fragment thereof comprising a region where amino acid residues  
10 corresponding to at least a portion of a complementarity determining regions (CDR) is  
11 replaced with a thiazolidinedione derivative.

12  
13           21.    A method as in claim 20 wherein the thiazolidinedione derivative is a  
14 peroxisome proliferator-activated receptor- $\gamma$  ligand.

15  
16           22.    A method of regulating adiponectin expression comprising administering  
17 to a subject an immunoglobulin molecule or fragment thereof comprising a region  
18 where amino acid residues corresponding to at least a portion of a complementarity  
19 determining regions (CDR) is replaced with a thiazolidinedione derivative.